U.S. Department of Justice
Federal Bureau of Investigation

OLEORESIN CAPSICUM (OC) TRAINING AND USE

FBI ACADEMY

FIREARMS TRAINING UNIT

FOR LAW ENFORCEMENT DISSEMINATION ONLY

OC Training and Use

Special Agent [redacted]
and
[redacted]

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FOREWORD

Over the years law enforcement officers have experienced an increase in the number of incidents wherein officers are attacked by dogs and/or are confronted by individuals who display violent and aggressive behavior. Oftentimes these situations can be adequately controlled by the officer using some form of chemical agent product.

Because these types of incidents have escalated over the years, the Firearms Training Unit (FTU) located at the FBI Academy in Quantico, Virginia, began conducting research and testing on the various types of available chemical agent products. The ultimate goal of the FTU's research was to obtain the most effective chemical agent product that could be carried by Special Agents (SAs). As a result of the research and tests conducted, the Federal Bureau of Investigation (FBI) has approved for use by its SAs the chemical agent OC.

This publication sets forth the information compiled by the FTU with regard to the results of the research conducted as well as, outlines the reasons as to the importance of proper training in the use of chemical agent products. The FTU has incorporated in its New Agent training curriculum an instruction block which familiarizes trainees with the proper dissemination of chemical agent products.

The course curriculum used by the FTU consists of classroom lecture and hands-on experience with chemical agents. Law enforcement agencies may not find all aspects of the information set forth in this document applicable to their specific department.

BACKGROUND INFORMATION

The FTU contacted various chemical agent manufacturers, and, after reviewing the available literature on the various products, (OC) appeared to be a product which warranted research as to the feasibility of its use as a supplemental chemical agent. The U.S. Army Chemical Research and Development Center (CRDEC), Edgewood Arsenal, Maryland, was contacted regarding research and experiments they had conducted using OC.

The CRDEC advised that tests have been conducted, although not by them, on the effects of OC on laboratory animals. The tests consisted of subjecting the animals to OC by such means as gastrointestinal doses, subcutaneous injections, liquid droplets to the eyes, and skin patch tests. CRDEC did not have available any documentation which revealed any short, or long-term mutagenic or carcinogenic effects on laboratory animals that were exposed to OC. No data was available regarding Median Incapacitating Dosage (IC_t 50) or Median Lethal Dosage (LC_t 50) on OC.

Two research chemists assigned to the FBI Forensic Science Research and Training Center and an analytical chemist who is a member of the Human Investigations Committee were consulted regarding possible long-term health risks which might be associated with the use of OC. These individuals advised that OC is derived from the cayenne pepper plant which is used in foodstuffs and pharmaceutical products. They could not foresee any long-term health risks associated with the use of OC as a chemical agent. The use of OC would fall outside of many governmental regulatory guidelines that would be applicable to man-made chemicals (Chloroacetophenone (CN) and Orthochlorobenzalmalononitrile (CS), for example).

Two of the largest manufacturers of OC aerosol units in the United States have advised that since 1977, they have sold over half a million aerosol grenades and Individual Protective Devices (IPDs) that contain OC. These manufacturers have not received any reports of long-term health risks based on its use. It should be noted that, to date, the FTU is unaware of any law suits filed against law enforcement officers and/or agencies as a result of the use of OC.

TESTING PROCEDURES AND RESULTS

During the period July, 1987 to May, 1989, the FTU conducted numerous test using OC. During the above period, 828 individuals were sprayed with IPDs containing from 1% to 5% solution of OC. The FTU varied the manner in which the OC was disseminated. Some of the individuals were sprayed directly in the face, while others were sprayed in an open environment, and others in an enclosed area. The duration of the exposure ranged from 10 to 45 seconds. The FTU observed the physical effects of individuals who were sprayed with the 1% solution and with the 5% solution. A variety of spray bursts were used over the duration of the test.

The physical effects upon those individuals sprayed with the higher content of OC were more severe. Also, those individuals who were sprayed with a continuous, three-second burst or three, one-second bursts experienced more severe physical reactions to the OC. The physical effects observed of the individuals tested ranged from severe twitching of the eyes to involuntary closing of the eyes; respiratory inflammation consisting of coughing and shortness of breath to gasping for breath with a gagging sensation and redness of the skin. Some of the individuals tested experienced minor cases of nausea and catatonia. None of the individuals tested experienced any long-term effects from the OC.

Personal decontamination of the individuals tested consisted of flushing the eyes and face with cool water. The facial burning in some of the individuals persisted; therefore, it was necessary for them to wash the exposed area with soap and water for further decontamination. In some cases, ice was used to relieve the persistent burning. The range of skin discoloration ranged from slight discoloration to a bright red. This range depended on the complexion of the individual and the dose of aerosol sprayed. Usually the skin discoloration would disappear from two minutes to a maximum of 40 minutes after decontamination. No further skin irritation developed on the skin once the discoloration disappeared.

All individuals experienced upper respiratory inflammation. The individuals experienced coughing, shortness of breath to a gagging sensation in the throat. The respiratory functions usually returned to normal within two minutes after each test. No further discomfort was experienced by any of the individuals tested. Visual acuity returned within two to five minutes after decontamination. The eyes of most individuals appeared bloodshot from ten to 15 minutes after contact with the OC. No further visual problems were noted once visual acuity was regained.

Unlike CS or CN, OC particles will dissipate from an individual's clothing in a relatively short period of time. Therefore, if a subject has been exposed to OC or his/her clothing has been sprayed with OC, it will not persist in the clothing and the arresting officer should not be physically affected while transporting the prisoner. However, it should be noted that some OC products are mixed with CS, and the CS will persist in clothing. Area decontamination can be accomplished within a half hour from contamination and consists of ventilating the enclosed area by opening the doors and/or windows.

LAW ENFORCEMENT USE OF OC

In an effort to gain some insight as to the frequency in which law enforcement agencies are using OC, as well as its success rate, the FTU furnished a questionnaire to 42 departments that have used or are currently using OC. The questionnaire requested such information as frequency of use, report medical problems among the officers/subjects, success rate, and any other experiences which might be of interest.

REPORTED USE OF OC

TIMES USED	NUMBER OF AGENCIES
1 - 5	27
6 - 15	8
16 - 25	1
26 - 40	3
41 +	3

None of the agencies reported any medical problems encountered by subjects and/or law enforcement officers through the use of OC.

The majority of the agencies that responded to the questionnaire stated that OC was used in instances where the subject was highly aggravated or agitated; under the influence of drugs and/or alcohol; mentally unbalanced; and in instances where an officer was attacked by a dog. Of all the agencies, only one cited an example of where the OC did not produce any physical effects after the subject was sprayed with OC. In this instance, there were no unusual circumstances to prevent the OC from working.

A number of agencies that responded to the questionnaire set forth specific incidents in which officers used OC and had positive results. Four of the agencies reported that they have had a high success rate when using OC in incidents where the subject is under the influence of narcotics. Several agencies reported successful use of OC when attempting to subdue individuals who were under the influence of alcohol.

One agency reported using OC to break up fights on the street. Two agencies advised they have successfully used OC to subdue mentally unbalanced individuals. Another agency advised that one of their officers successfully used an aerosol grenade containing OC to break up a fight in a union hall.

Nine agencies reported successfully using OC against individuals who were extremely excited or agitated. Two of these agencies reported using OC to subdue violent and uncontrollable inmates. OC was used on one occasion to disable a large biker who was being arrested. One agency reported that an aggressive poacher who was approximately 6'6" tall and weighed 250 pounds was successfully subdued, arrested, and transported by one officer.

Ten agencies advised that on numerous occasions, OC has been successfully used against aggressive and attacking dogs. One agency reported using OC against a pack of wild dogs. One agency stated that OC has been used five times to subdue guard dogs while the dogs' owners were being placed under arrest.

TRAINING WITH OC

The FBI might find it necessary to use chemical agents in incidents such as barricade situations, SAs who are attacked by dogs, individual protection against uncontrollable and/or violent subjects during an arrest situations, etc. Some situations may be adequately controlled by using chemical agents. However, it is certain that proper training in using the various chemical agent products plays a vital role in its success rate.

For this reason, each New Agent trainee class is presented with a four-hour block of instruction regarding chemical agents. This block of instruction includes a classroom presentation and hands-on use of chemical agents.

A portion of the instruction block is used to describe the various situations in which the introduction of chemical agents might be warranted, and the selection criteria as to what type of device would be appropriate for different situations. Trainees are given information relating to the chemical makeup of various tear gases and OC, and the physiological effects of such chemicals. Devices such as hand grenades, launching projectiles, liquid and powder containers, shotgun ferret rounds, etc., are displayed to assist them in identifying the various products. Trainees are given a brief overview in rendering first aid as well as the proper decontamination procedures.

Since many of the SA trainees have never been exposed to the effects of chemical agent products, it is important to expose them to a contaminated environment to test their reactions. Trainees are exposed to an enclosed contaminated area. They are first required to use their gas masks, and then they are required to remove their masks. In this regard, it aids in stressing to them that they can survive and function in a contaminated environment, even if their only alternative is to extricate themselves from the area of danger. From a tactical standpoint, trainees are made aware that the use of chemical agents should always be given consideration as a less-than-lethal force option.

FIRST DEFENSE® AEROSOL INCAPACITATING PRODUCTS

FIRST DEFENSE® AEROSOL INCAPACITATING PRODUCTS.

Holding true to its commitment and the fine reputation of DEF-TEC PRODUCTS®, Defense Technology Corp. of America is proud to announce our newest "less-than-lethal" product FIRST DEFENSE®. FIRST DEFENSE was developed with the specific purpose of eliminating ozone depleting carriers (contains no CFC'S or HCFC'S), and to maintain a formula* which is non-flammable. FIRST DEFENSE is available in a wide range of sizes, from the small pocket-style unit to the wide dispersion high-output fogger.

FIRST DEFENSE® is a registered trademark of Defense Technology Corp. Of America.

MODEL	PRODUCT CODE	EFFECTIVE DISTANCE	LIQUID WEIGHT	AVG. NO. 1/2 SEC. BURSTS
MK-III FIRST DEFENSE®	5039	12-15 feet	1.47 ounces	14 - 16
MK-III Inert Training Unit	5139	12-15 feet	1.47 ounces	14 - 16
MK-IV FIRST DEFENSE®	5049	12-15 feet	3.0 ounces	35 - 40
MK-IV Inert Training Unit	5149	12-15 feet	3.0 ounces	35 - 40
MK-V FIRST DEFENSE®	5259	12-15 feet	1.47 ounces	14 - 16
MK-V Inert Training Unit	5159	12-15 feet	1.47 ounces	14 - 16
MK-VI FIRST DEFENSE®	5069	10-12 feet	.68 ounces	8 - 10
MK-VI Inert Training Unit	5169	10-12 feet	.68 ounces	8 - 10
MK-IX FIRST DEFENSE®	5099	10-15 feet	18.5 ounces	18-20
MK-IX FIRST DEFENSE® Inert	5199	10-15 feet	18.5 ounces	18-20

Specifications Subject to change without notice.

➤ **OPERATION:**
Spray directly into the face. The spray should be directed to the eyes, nose and mouth. Avoid spraying an attacker who is upwind.

➤ **CONSTRUCTION:**
All **FIRST DEFENSE®** Aerosols are constructed of a one piece seamless aluminum can filled with Oleoresin Capsicum formulation.

➤ **DECONTAMINATION:**
Oleoresin Capsicum is an organic, non-enduring substance, therefore decontamination is relatively quick and simple.

1.) Expose to fresh air as soon as possible and flush contaminated areas with large amounts of cold water.
2.) Remove contact lenses and contaminated clothing, and wash thoroughly prior to reuse.
3.) Further relief may be gained by showering and washing affected areas with soap and water. Do not apply salves, creams, oils or lotions which can trap the irritant.
4.) See a physician if irritation persists.

➤ **AREA:**
Ventilate the enclosed, affected area by opening doors and windows. All traces of OC can successfully disappear in as little as 30 minutes.User cross-contamination is totally avoidable by proper dispersion methods, and providing the affected subject ample time for personal decontamination before transporting. Contaminated clothing can be washed with normal soap and water without fear of mixing with other uncontaminated clothing.

** Formula Patent Pending*

DEFENSE TECHNOLOGY CORP. OF AMERICA
P.O. BOX 240 - 2136 OIL DRIVE - CASPER, WYOMING, 82604-1511-U.S.A.
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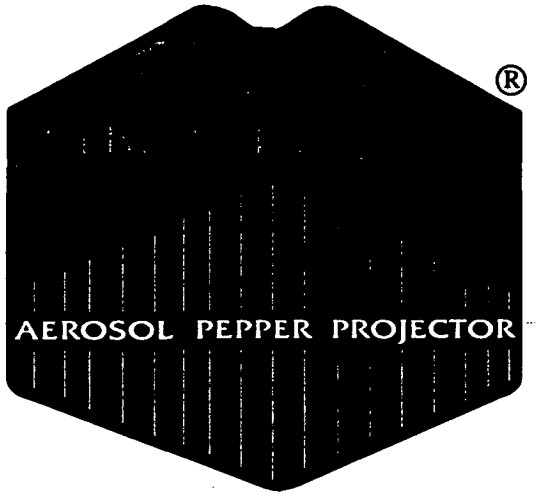

FIRST DEFENSE®

MODELO	CÓDIGO DEL PRODUCTO	DISTANCIA EFECTIVA	PESO LIQUIDO	# PROM. 1/2 SEG. ESTALLIDOS
MK-III FIRST DEFENSE®	5039	3.5-4.5 metros	1.47 oz. (41.67 g.)	14 - 16
MK-III Inerte	5139	3.5-4.5 metros	1.47 oz. (41.67 g.)	14 - 16
MK-IV FIRST DEFENSE®	5049	3.5-4.5 metros	3.0 oz. (85.05 g.)	35 - 40
MK-IV Inerte	5149	3.5-4.5 metros	3.0 oz. (85.05 gr.)	35 - 40
MK-V FIRST DEFENSE®	5259	3.5-4.5 metros	1.47 oz. (41.67 g.)	14 - 16
MK-V Inerte	5159	3.5-4.5 metros	1.47 oz. (41.67 g.)	14 - 16
MK-VI FIRST DEFENSE®	5069	3-3.5 metros	.68 oz. (19.28 g.)	8 - 10
MK-VI Inerte	5169	3-3.5 metros	.68 oz. (19.28 g.)	8 - 10
MK-IX FIRST DEFENSE®	5099	3-4.5 metros	18.5 oz. (520 g.)	18 - 20
MK-IX FIRST DEFENSE® Inerte	5199	3-4.5 metros	18.5 oz. (520 g.)	18 - 20

➤ **FUNCIONAMIENTO:**
Atomizar directamente en la cara. El rociado debe dirigirse directamente a los ojos, nariz y boca. Evitar de rociar al atacante que se encuentra contra el viento.

➤ **CONSTRUCCIÓN:**
AEROSOLES: Todos los **FIRST DEFENSE®** Aerosoles vienen en botes de alumino de una sola pieza sin costura, llenos con una solucion de Oleoresin Capsicum no inflamable.

➤ **DESCONTAMINACIÓN:**
Oleoresin Capsicum es una substancia organica que no perdura, por lo tanto la descontaminación es relativamente facil y rapida.

➤ **EL PERSONAL:**

1.) Tome aire fresco tan pronto como pueda y lavese las area contaminadas usando mucha agua fria.
2.) Quitese los lentes de contact la ropa contaminada y lavelos bien antes de volverlos a usar
3.) Se puede obtener mas alivio tomando una ducha y lavandose las areas afectada con agua y jabon. No se apliq unguento, cremas, aceites o lociones que puedan cubrir el irritante.
4.) Consulte con un medico si la irritacion persiste.

➤ **AREA:**
Ventile el lugar cerrado que fue afectado abriendo puertas y ventanas. Cualquier rastro de OC puede desaparecer facilmente dentro de los primeros 30 minutos. Se evita totalmente la contaminacion del usario por medio de metodos apropiados de dispersion y dandole a la persona afectada suficiente tiempo para la descontaminacion personal antes de ser transportado. La ropa contaminada pueda lavarse con agua y jabon comun sin miedo de mezclarla con otras ropas que no estan contaminadas.

AEROSOL PRODUCTS CHEMICAL MACE®, PEPPER MACE®, CS AND INERT

AEROSOL PRODUCTS CHEMICAL MACE®, PEPPER MACE®, CS AND INERT

DEFENSE TECHNOLOGY CORP. OF AMERICA is the exclusive manufacturer of CHEMICAL MACE® and PEPPER MACE®. We offer a wide selection of aerosols in both stream and fog to suit your application. These products offer the police or corrections officer viable alternatives to batons or handguns, where the use of non-lethal force would be warranted.

MACE®, CHEMICAL MACE®, and PEPPER MACE® are registered trademarks of Defense Technology Corp. Of America.

MODEL	IRRITANT	DELIVERY STYLE	EFFECT. DIS. FT.	NO. 1 SEC. BURSTS	NET WTS.	PROD. CODE
MK-I	CS	STREAM	6-10	30	24 g	9601
MK-II	CS	FOGGER	6-10	40	126 g	9611
MK-II	CS	STREAM	10-12	40	126 g	9610
MK-IVB	CN	STREAM	10-12	40	104 g	9503
MK-V	CN	STREAM	10-12	40	80 g	1054
MK-VI	CN	STREAM	6-10	30	24 g	1056
MK-IX	CN	FOGGER	15-20	25	520 g	9621
MK-IX	CS	FOGGER	15-20	25	562 g	9622

➤ **REFERENCES:**

MODEL	PRODUCT CODE
MK-I INERT	9602
MK-II INERT	9613
MK-II FOGGER INERT	9612
MK-IVB INERT	9502
MK-V INERT	1055
MK-V RELOAD LIVE	2060
MK-V RELOAD INERT	2050
MK-VI INERT	1057
MK-IX INERT	9623

WARNING: Extreme caution must be exercised in dangerous situations where officer is under attack or threat of attack with firearms, knives, fists, or other means of violence. In such situations the aerosol irritant projector may not stop the attack or threat of attack and the officer is cautioned to use other available weapons or to retreat to point of safety.

MODEL	PRODUCT CODE	EFFECTIVE DISTANCE	LIQUID WEIGHT
MK-IV PEPPER MACE®	9509	6-8 feet	3.67 ounces (104 g)
MK-IV Inert Training Unit	9504	6-8 feet	3.67 ounces (104 g)
MK-VI PEPPER MACE®	1059	6-8 feet	.85 ounces (24 g)
MK-VI Inert Training Unit	1053	6-8 feet	.85 ounces (24 g)
MK-IX PEPPER MACE®	9629	10-15 feet	18.5 ounces (520 g)
MK-IX Inert Training Unit	9624	10-15 feet	18.5 ounces (520 g)

Specifications subject to change without notice.

➤ **APPLICATION:**
MACE®, PEPPER MACE® and CS products offer the police or corrections officer viable alternatives to batons or handguns, where the use of non-lethal force would be warranted.

➤ **OPERATION:**
MACE® & CS PRODUCTS:
Hold upright and direct spray toward the chin area of the assailant.
PEPPER MACE®:
Spray directly into the face. The spray should be directed to the eyes, nose and mouth. Avoid spraying an attacker who is upwind.

➤ **CONSTRUCTION:**
All Aerosols are constructed of a one piece seamless aluminum can.

➤ **DECONTAMINATION:**
1.) Expose to fresh air as soon as possible and flush contaminated areas with large amounts of cold water.
2.) Remove contact lenses and contaminated clothing, and wash thoroughly prior to reuse.
3.) Further relief may be gained by showering and washing affected areas with soap and water. Do not apply salves, creams, oils or lotions which can trap the irritant.
4.) See a physician if irritation persists.

➤ **OLEORESIN CAPSICUM:**
Ventilate the enclosed, affected area by opening doors and windows. All traces of OC can successfully disappear in as little as 30 minutes.User cross-contamination is totally avoidable by proper dispersion methods, and providing the affected subject ample time for personal decontamination before transporting. Contaminated clothing can be washed with normal soap and water without fear of mixing with other uncontaminated clothing.

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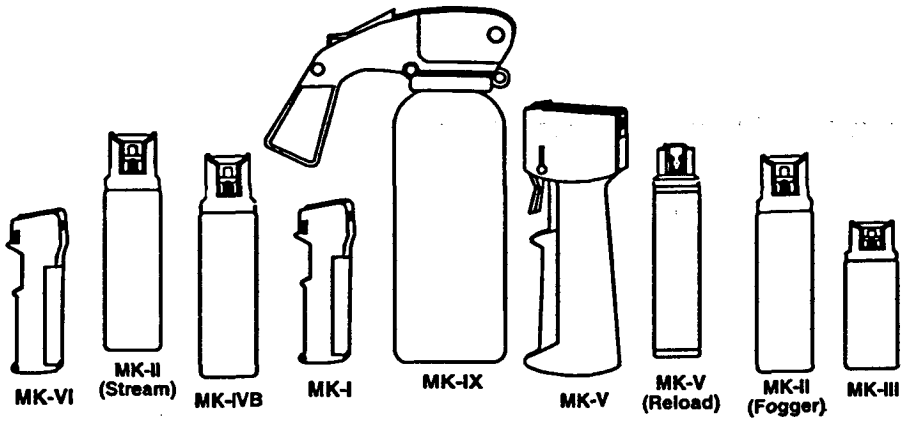

➤ **APLICACION:**
Los productos MACE Y CS ofrecen al policía u oficial alternativas viables al uso de la vara o de la pistola cuando el uso de fuerza no mortal estaría justificada.

➤ **CONSTRUCCIÓN:**
Una lata de alumino sin costura de una sola pieza.

➤ **OPERACIÓN:**
Sostener hacia arriba y dirigir el chisguete hacia la barbilla del asaltante.

➤ **REFERENCIAS:**

MODELO	CÓDIGO DEL PRODUCTO
MK-I INERTE	9602
MK-II INERTE	9613
MK-II INERTE DE NEBLINA	9612
MK-IVB INERTE	9502
MK-V INERTE	1055
MK-V RECARGA ACTIVA	2060
MK-V RECARGA INERTE	2050
MK-VI INERTE	1057
MK-IX INERTE	1096
MK-IX INERTE	9623

AEROSOL PRODUCTS MACE®, PEPPER MACE®, CS AND INERT

MODELO	*CÓDIGO DEL PRODUCTO*	*DISTANCIA EFECTIVO*	*PESO LÍQUIDO*
MK-IV PEPPER MACE®	9509	2-2,5 metros	3.67 oz. (3,67 g.)
MK-IV Inerte	9504	2-2,5 metros	3.67 oz. (3,67 g.)
MK-VI PEPPER MACE®	1059	2-2,5 metros	.85 oz. (,85 g.)
MK-VI Inerte	1053	2-2,5 metros	.85 oz. (,85 g.)
MK-IX PEPPER MACE®	9629	3-4,5 metros	18.5 oz. (18,5 g.)
MK-IX Inerte	9624	3-4,5 metros	18.5 oz. (18,5 g.)

➤ **FUNCIONAMIENTO:**
Atomizar directamente en la cara. El rociado debe dirigirse directamente a los ojos, nariz y boca. Evita de rociar al atacante que se encuentra contra el viento.

➤ **CONSTRUCCIÓN:**
AEROSOLES: Todos los **PEPPER MACE®** Aerosoles vienen en botes de alumino de una sola pieza sin costura, llenos con una solucio de Oleoresin Capsicum no inflamable.

➤ **DESCONTAMINACIÓN:**
Oleoresin Capsicum en una substancia orgánica que no perdura, por lo tanto la descontaminación es relativamente fácil y rápida.

➤ **EL PERSONAL:**
1.) Tome aire fresco tan pronto como pueda y lávese los lugares contaminados usando mucho agua fría.
2.) Quítese los lentes de contacto y la ropa contaminada, y lávelos bien antes de volverlos a usar.
3.) Se puede obtener más alivio tomando una ducha y lavándose las partes afectadas con agua y jabón. No se aplique ungüento, cremas, aceites o lociones que puedan cubrir el irritante.
4.) Consulte con un médico si la irritación persiste.

➤ **AREA:**
Ventile el lugar cerrado que fue afectado abriendo puertas y ventanas. Cualquier rastro de OC puede desaparecer fácilmente dentro de los primeros 30 minutos. Se evita totalmente la contaminación del usario por medio de métodos apropiados de dispersión y dándole a la persona afectada suficiente tiempo para la descontaminación personal antes de ser transportado. La ropa contaminada pueda lavarse con agua y jabón común sin el miedo de mezclarla con otras ropas que no están contaminadas.